

Discovery Lessons Learned for Explorer Retreat, Sept 03  
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1. Beware of a rush to meet milestones irrespective of the maturity of the “content” at the time; especially, to reach Confirmation (“hurry up” then do it over!). Must be enforced by managing organization/Governing Pgm Mgmt Council (GPMC)
2. Must have cost, sched, technical content in lock-step at the milestones, or you do NOT satisfy the milestone. Again, must be enforced by managing org/GPMC

(Items 1 & 2 above are admittedly tough to avoid sometimes, especially with the drive to meet planetary windows.)

3. Beware of using a material (or mechanism, or technology) in an environment for which there is an inadequate knowledge base. Make sure you recognize the assumptions (implicit or otherwise) in the operating environment that comes with a part/material/process. May need to challenge or test validity of assumption.
4. Make sure you have a good understanding what margins you truly have, and what they mean. Unsubstantiated flight allowable levels could drive you to do the wrong thing.
5. One must truly understand the state of cost reserves and what’s really “unencumbered”! Example: Don’t let contractor incentive fees be viewed as a potential part of reserves.
6. Nothing replaces solid systems engineering. Beware of the lack of thoroughness of systems engineering & management at "players" without significant NASA, or major aerospace, experience.
7. Past good performance is NO guarantee of success - beware of the hubris of folks coming off a "stellar" mission.
8. Use of independent review bodies – must ensure adequate peer-level (“shirt-sleeve”) review, not just a “one-time” posse, every so often.
9. Can’t emphasize enough the need to convey lessons-learned (including technical problems found & solved, hopefully) between missions, program participants, etc.
10. Must have a clear understanding of who's the finance "csar" overall for a mission & what financial management support a PI's university or institution provides.
11. Watch out for unintended consequences of incentives in contracts; they can drive behavior in unintended directions.